EXHIBIT 13

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UNITED STATES DISTRICT COURT

FOR THE CENTRAL DISTRICT OF CALIFORNIA, SOUTHERN DIVISION

TCL COMMUNICATION TECHNOLOGY HOLDINGS, LTD., *et al.*,

Plaintiffs,

v.

TELEFONAKTIEBOLAGET LM ERICSSON, *et al.*,

Defendants.

TELEFONAKTIEBOLAGET LM ERICSSON, *et al.*,

Plaintiffs,

v.

TCL COMMUNICATION TECHNOLOGY HOLDINGS, LTD., *et al.*,

Defendants.

Case No. SACV14−00341 JVS (DFMx)

Consolidated with CV15–02370 JVS

PLAINTIFFS' DIRECT EXAMINATION BY DECLARATION FOR EXPERT WITNESS DR. APOSTOLOS (PAUL) KAKAES

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Before Hon. James V. Selna

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essential patents. Within ETSI and 3GPP, such submissions are referred to as TDocs. But TDocs are not patents, and there is virtually no correlation between the content of a TDoc and the scope of any patent claims owned by a company like Ericsson. For a contribution analysis to accurately estimate the strength of an alleged SEP portfolio, there must be a technical basis to match the contributions to one or more patents within the portfolio.

407. To determine whether there is any correlation between approved technical contributions and standard-essential patents, I calculated the correlation coefficient between two data sets: the Working Groups relevant to Ericsson's alleged SEPs based on Ericsson's claim charts, and the Working Groups associated with the listing of TDocs identified by Ericsson as constituting "approved" contributions. For the second data set, I relied on the listing of over 18,000 TDocs Ericsson identified and alleges were approved for inclusion into the standards. (*See* Ericsson's First Supplemental Response to Plaintiff's Fourth Set of Interrogatories (No. 35).) As each Working Group is responsible only for certain technical specifications, the lack of correlation between these two data sets shows that Ericsson's alleged SEPs could only potentially relate to a small fraction of the over 18,000 alleged "approved" contributions Ericsson identified. Given the lack of correlation between the data sets, contribution counting provides virtually no evidence as to the strength of a given SEP portfolio.

A. Correlation Methodology

408. I developed an approach to identify if any correlation exists between Ericsson's TDocs and its alleged SEP portfolio that categorizes the data based on the standard specifications identified in Ericsson's claim charts. Ericsson admits that it "does not maintain, in the ordinary course of business, a list correlating [the over 18,000] approved technical proposals with its patent applications, patents issued, or patent family members." (*Id.*) To correlate a single TDoc of those identified by Ericsson to one or more patents within the alleged SEP portfolio would

identification was easy, as T1 appears to have been responsible for a single specification, of which a descendant was noted, the responsibility of which fell to the R5 Working Group. Therefore, I allocated the T1 TDocs to the R5 Working Group.

419. Each of the N1, N3, and N4 Working Groups were responsible for several standard specifications, making the determination of a surrogate Working Group a bit more involved. To ensure a proper allocation, I reviewed each of the specifications associated with each closed Working Group to identify all currently open Working Groups responsible for any descendant, antecedent, or superseding document. After reviewing the available records from 3GPP, it was clear that the responsibility was transferred from one closed Working Group to a single open Working Group. Specifically, it appears that the responsibilities of the N1, N3, and N4 Working Groups were transferred to the C1, C3, and C4 Working Groups. Therefore, I allocated the N1, N3, and N4 TDocs accordingly.

B. <u>There Is Little or No Correlation Between Approved Contributions and Issued Patents.</u>

420. I considered the distribution of the number of instances a standard related to a given Working Group was used in the claim charts provided by Ericsson, as identified by the point values I allocated, as I discussed above. For example, the R1 Working Group received a score of 67.75 of the 219 points, and R2 received 75.92. These two Working Groups dominated the scene. The entire distribution is shown in the tab "Claim Charts WG" of the spreadsheet I prepared. (Ex. 1323.) The spreadsheet further includes a tab labeled "Ericsson TDoc Dist," showing the distribution of the over 18,000 TDocs that Ericsson identified. To the extent that the contributions represent a good proxy to the patents that Ericsson claims are standards-essential, these two sets of numbers should be highly correlated as they are intimately related by the corresponding Working Group.

421. As stated above, I calculated the correlation coefficient of these two

data sets. The correlation coefficient may be calculated using a sample-based formulation or a population-based formulation. Although a population correlation coefficient yields a slightly smaller result, both approaches are acceptable. For this analysis, I calculated a sample correlation coefficient. The correlation coefficient is a number between "-1" and "1." If two sets of numbers are highly correlated in the same direction, meaning when one variable tends to be large so does the other variable, the correlation coefficient will be close to "1." If the correlation is high, but in the opposite direction, meaning when one variable tends to be large the other variable tends to be small, the correlation coefficient will be close to "-1." If the two sets are independent, the correlation will be mathematically zero, or practically close to zero.

422. The calculations and result are shown in the tab labeled "RHO" of the related spreadsheet. (Ex. 1323.) As it turns out, the sample correlation coefficient is approximately 0.02915, which for all practical purposes is indistinguishable from zero. In other words, the two sets of numbers are not correlated at all, proving that the over 18,000 TDocs that Ericsson provided as evidence of the strength of its alleged SEP portfolio actually provide no such evidence at all. When viewed with respect to the totality of TDocs submitted to each Working Group by Ericsson, out of the over 18,000 TDocs, this lack of correlation is more clearly evident. The "ORDERED" tab ranks the Working Groups based on the total number of Ericsson's identified approved contributions associated with each Working Group. (*Id*.) Although Ericsson identified the 219 family/standard pairs as predominately relevant to the R1 and R2 Working Groups, these two Working Groups represent only the sixth and eleventh ranked Working Groups based on total approved Ericsson TDocs, respectively.

423. In order to better appreciate why a correlation coefficient of 0.02915 is practically zero, I calculated the correlation coefficient between two randomly-generated set of values. The results can be found in the tab labeled

"RAND_FIXED" of the spreadsheet attached to my Expert Report. (*Id.*) I used the Excel random function "rand()" to generate two sets of random numbers between "0" and "1," all of them independent of all other random numbers. The size of each set is 18, the same as with the actual data of the Working Groups. In other words, the two sets of 18 numbers each are independent and thus their correlation coefficient should be close to zero. As it turns out, it is approximately 0.10709, which reinforces my statement that 0.02915 is practically zero. Since the function "rand()" will generate new values each time it is invoked, I "froze" one set of results in the spreadsheet to illustrate the point. The "experiment" could be re-run repetitively to further support that such a set of randomly generated values would have a correlation coefficient close to zero, much as 0.02915 is.

C. Technical Analysis of Sample TDocs Identified By Ericsson Shows a Lack of Support Regarding the Strength of Ericsson's Portfolio.

424. As shown through my correlation analysis, there is essentially zero correlation between the two data sets. For further context, Dr. Valenti and I took it upon ourselves to analyze several of Ericsson's identified approved contributions. There are various types of TDocs that are approved during the standardization process, many of which are not inventive in nature. For example, an approved TDoc might merely address a text proposal, such as rephrasing, which is not an actual inventive contribution to the standard that is protectable by a patent. Moreover, approved TDocs may not be directed to relevant to User Equipment. For example, an approved TDoc may be directed to text proposals concerning portions of the standard relevant only to base stations. As these types of contributions are non-inventive or irrelevant to User Equipment, these TDocs fail to provide any evidence as to the strength or essentiality of Ericsson's alleged SEPs. I will discuss several examples of these types of TDocs that were included in Ericsson's listing, to help provide more context as to the correlation results discussed above. These examples are not meant to be in any way exhaustive, but to merely provide a few

examples of the types of irrelevant TDocs Ericsson has included in its listing.

1. TDoc C1-060692

425. This TDoc is a Change Request, or "CR," seeking to modify technical specification 24.206, entitled "Voice Call Continuity between the Circuit-Switched (CS) domain and the IP multimedia (IP) Core Network (CN) Subsystem." (Ex. 1388.) This technical specification relates to the core network, and therefore does not involve the handset. Moreover, the requested change is merely a "correction of notation for the signaling flows." The justification given is that the "notation for CS and IMS control signaling and media are similar." The only proposed action is to change the notation for the different control signals to make it "easier to see the difference between CS and IMS" which "can avoid possible misunderstanding during implementation." This CR is a clarification and does not introduce or produce any new features whatsoever.

2. TDoc C4-080437

426. This TDoc is a joint submission by Ericsson and several other member organizations, related to technical report 23.820, entitled "Study on IMS Restoration Procedures." (Ex. 1339.) This technical report proposes a "problem scenario" involving the Home Subscriber Server, or "HSS." The HSS is a database containing subscriber information. (Ex. 1416 at p. 144.) The HSS resides within the Evolved Packet Core, or "EPC," which is the core network, as illustrated by the following Figure 8.1 from the Dahlman text.

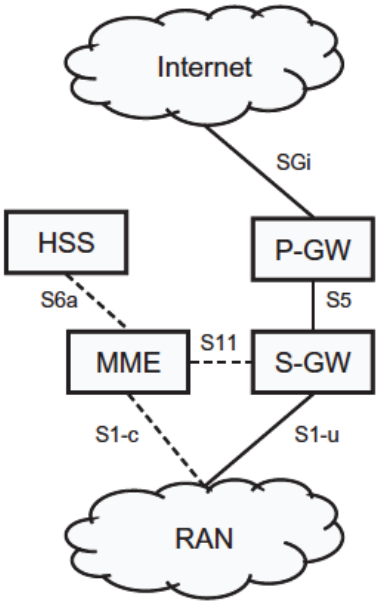

FIGURE 8.1

Core-network (EPC) architecture.

(*See id*. at 144.)

427. The problem scenario focused on overcoming interruptions of the HSS due, for instance, from hardware faults, resulting in potential loss of critical information. (Ex. 1337 at p. 15.) The recommendation in the TDoc is: "The contribution proposes to conclude that any IMS Core Network implementing IMS Restoration Procedures should include an HSS that provides sufficient redundancy so that it is possible to assume that critical data is always available." As the contribution is only contemplating the redundancy of data stored at the HSS within the EPC, it does not in any way relate to handsets. Moreover, the proposed text does not cover how to technically implement the HSS in such a manner, only that some information is deemed "critical" and should be preserved in the implementation. The contribution is also related to a technical report, which contains mostly explanatory material as opposed to a technical specification. Standards are defined in the set of technical specifications, not in technical reports. Thus, for several independent reasons, this CR does not introduce or produce any new patentable features whatsoever.